in fact it should be only great enough to reach the level needed. Dr. Welty says he fears there is danger to life in using this method. We all know we have cases of chronic ear suppuration that need operation, and we are unable to obtain consent to an operation. We know the life must be endangered if we cannot get rid of the disease. My first case was brought about because I could not obtain consent to do a radical mastoid operation. Dr. Welty speaks of my using it through an incision in the membrana as if he thought I advised it in intact membranes, but of course not in such cases, but possibly some cases might need an opening in a better location for reaching affected areas.

Dr. Trowbridge asked how much carbolic acid I used in the first case reported. I used about 6 c.c. of carbolic. I used it until I filled the cavity, so all parts of the cavity could be reached, the top as well as other parts. There may be quite a few who may use it in every case of chronic middle ear suppuration, but a proper selection of cases will give best results. I think after you have treated a case for two or three weeks, or a month, and have fixed up the nose and throat without improving the aural condition, you can tell when to use this treatment best. Where there is a cavity about the attic or antrum from which pus comes, or even throughout the tympanum, you either have to operate, or else do as much for the patient as you can without an operation, and if you use this method you will often avoid a mastoid operation.

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UPON THE RADIOGRAPHIC DIAGNOSIS OF HYDRONEPHROSIS.*

By MARTIN KROTOSZYNER, M. D., San Francisco.

Until a few years ago pathological conditions of the kidney due to urine stasis in the renal pelvis were designated as hydronephrosis, of which, according to the character of the retention fluid, two main varieties, the aseptic and infected, form, were differentiated. The French school, upon Albarran's authority, accepted for the same conditions the terms uronephrosis and uropyonephrosis. Much diversity of opinion prevails in text books regarding the nomenclature of infected hydronephrosis. Many authors, most prominent among them Küster, comprise all renal infectious conditions, resulting in pus formation, and independent of their etiology, under the term pyonephrosis. Israel and his school, on the other hand, make a strict distinction between the term infected hydronephrosis, as the end product of aseptic urine stasis in the upper urinary tract, and that of pyonephrosis, which is to be reserved for the terminal stage of pyelo-nephritis, a condition due to hematogenous infection or some other inflammatory septic process. The same incongruity of nomenclature prevails with the term "Sackniere" of the Germans, which is used by some authors for the final stage of aseptic hydronephrosis, and by others for all varieties of retention tumors of the kidney, including pyonephrosis.

From the foregoing the conclusion is forced upon us that a clear conception of the underlying etiological factors of renal dilatation is still lacking. The nomenclature and pathological classification of these conditions is, obviously, in need of revision and correction.

Relief, though, from this chaotic disparity of classification and nomenclature seems to be close at hand. For, while we formerly were merely able to diagnose a far advanced or palpable dilatation of the kidney, which, as a rule, was the end-product of a long standing pathological process of mechanical nature, we are, to-day, enabled to determine the various degress of dilatation of the upper urinary tract from their incipient stages. This marked advance in our diagnostic armamentarium is, above all, due to the perfection of ureteral catheterization, a procedure which in trained hands, and carried out with the aid of the modern close vision cystoscope, is performed almost as easily, as aseptically, and as painlessly as catheterization of the bladder. It is, furthermore, due to the advent of the injected ureter-catheter, by the application of which the slightest anomalies of deviation and caliber of the ureteral tube are demonstrable on the plate. It is, finally, due to pyelography, which, if performed lege artis and under observation of due caution, represents a safe and exact diagnostic method. By the judicious and selective application of these diagnostic procedures we are, to-day, enabled to recognize incipient abnormalities of size and configuration of the hollow system of the upper urinary tract, which, if left alone, are known to result invariably in irreparable hydronephrotic lesions, and which, by proper means of prophylaxis and of timely measures of treatment, may be corrected or repaired. Thus the importance of the pyelographic study of mechanical lesions of the upper urinary tract becomes obvious.

It is not my object to discuss, in this connection, the indications, the technique and similar features of pyelography. I have, like others, reported, elsewhere, upon my personal experiences with the drawbacks and dangers of the method, and, since then, have tried to get along without its use, wherever the diagnosis could be established by means of less risky procedures. Meanwhile the technique of the method has been materially improved, as for instance by the use of less irritating and, at the same time, better shadow casting fluids (thorium nitrate solutions) and the indications for its applications have gradually become limited to such renal conditions, in which the diagnostic aid, derived from the method, would not be offset by undue risks to the patient. This is, though, particularly true of hydronephrotic lesions, where, on account of the dilatation of the renal pelvis, a certain amount of the shadow casting fluid can be injected without causing distress or injury, and in the early stages of which the diagnosis almost entirely depends upon the pyelographic recognition of the underlying cause. Thus, wherever, of late, I have applied pyelography in this type of cases, I have never observed on my patients untoward sequels of serious nature, except occasionally local pain, or a slight general reaction, characterized by a brief period of fever and malaise.

Indispensable for the correct interpretation of

* Read before the annual meeting of the California State Medical Society, Fresno, Cal., April 20th, 1916.

pyelographic plates, as regards incipient hydronephrosis, is the differentiation of the cast of the normal renal pelvis and its hollow appendages from that of the mechanically pathological viscus. Here we are confronted with a difficult problem, the solution of which is still wanting on account of not being available on pyelography alone. The individual variability of size and form of the anatomical renal pelvis is a well known fact, and the renal pelvis, besides that, may be entirely missing or present an asymmetrical form.

A good pyelogram of a normal kidney should permit of a fair conclusion regarding its posture and location. The left kidney lies, normally, a little higher than its right-sided mate, the latter organ reaching from the 11th costal to the 1st lumber vertebra, while the left one, as a rule, is located 2 cm. higher. Thus, the 12th rib is crossed on the left by the renal pelvis and on the right side by the upper calices. Of the greatest differential diagnostic importance is the fact that the normal pelvis is empty and that it reacts against the injection of shadow casting fluids with severe pain. The pyelogram of the normal kidney, therefore, shows the hazily marked contours and dim shadows of the two perpendicularly located main calices and that of the small and slit-shaped pelvis, which in a smooth line runs into the pelvic portion of the ureter.

In beginning hydronephrosis, on the other hand, shadows of greater intensity are obtained, and the statement is ventured, that sharp pyelographic contours of the pelvic shadows are significant of dilatation. Of still greater importance is the ureteropelvic anastomosis, which, in beginning hydronephrosis, is marked by a more or less angular contour, while the pelvis itself assumes a sacculated form.

The diagnosis of incipient mechanical lesions of the hollow system of the kidney has been materially advanced by the investigations of F. Voelcker, who, since his pioneer work on pyelography, has indefatigably labored towards perfecting that method for the recognition of conditions of dilatation and infection of the renal pelvis. He first applied the ideas, long in use, to express mechanical impediments to bladder-evacuation, to mechanical lesions of the upper urinary tract. The normal bladder is entirely emptied with each urination, and in mechanical bladder lesions the urine quantity, remaining in the viscus after spontaneous micturition, or the so-called residual urine, expresses the degree of bladder insufficiency due to the existing mechanical impediment. Analogically the renal pelvis is, under normal mechanical conditions, completely emptied with each ureteral contraction, and every cystoscopist knows, evacuation of an appreciable amount of urine, after the arrival of the distal and of the ureter-catheter in the renal pelvis, to be significant of a pathological enlargement of that viscus. Thus the urine stagnating in the pelvis, on the basis of a mechanical lesion, represents the residual renal urine, its underlying condition is called renal retention and, according to the ability of the pelvis to get rid, spontaneously, of a certain amount of its retained renal secretion, incomplete and complete renal retention may be differentiated.

Aside from determining the amount of residual renal urine, the quantity of fluid which the renal pelvis is able to hold comfortably, or its so-called capacity, must be ascertained. Systematic investigations on the cadaver, done by Zondek, have proved the capacity of the normal anatomical renal pelvis to be very small, amounting to about 1cc in the average and not exceeding 2 cc. By similar measurements on the living subject the capacity of the surgical pelvis of the kidney, i. e., of the pelvis and calices, is determined. For practical purposes, the capacity of the surgical renal pelvis is ascertained by passing a ureter catheter to the pelvis, ridding that viscus, by these means, of residual urine it may contain, and then measuring the quantity of fluid required for filling, until pain ensues. Voelcker found the capacity of the normal surgical renal pelvis, determined in this manner, to vary between four and six cc. and he is inclined to consider higher values as significant of pathological dilatation, while other authors, particularly Braasch, assume a wider margin for normal renal capacity (up to 20 cc.). It is safe, though, to assume that a renal capacity above 10 cc. lies outside the normal limits.

On the basis of the general acceptance of these essential points, concerning the mechanical and pyelographic characteristics of the normal pelvis and its incipient pathological dilatation, several distinct types of mechanical renal lesions of more advanced character can be differentiated. According to my own observations, the most important types are:

1. Dilatation of the renal pelvis alone, without that of calices. This type is characterized by an enlarged and sacculated shadow of the pelvis, around which, laterally, are grouped the small wart-like shadows of the various calices.

2. Dilatation of the anatomical pelvis, including that of calices. The pyelogram in this type presents, laterally, from the enlarged and sacculated pelvis-shadow, round or berry-shaped shadows of several calices.

3. Dilatation of calices without that of the anatomical renal pelvis. The calices in this type show enlarged, irregularly shaped or round forms, while the pelvic shadow appears to be of normal size.

4. Sacculation of the whole kidney (Sackniere). As characteristic pyelographic features of this type we note, that the shadows of calices exceed in size that of the pelvis, while the connective links between calices and pelvis are broadened, until in the complete sack-formation of advanced hydronephrosis (Sackniere) one uniform huge shadow, comprising pelvis and calices, appears on the plate.

We were used, until lately, to base indications for operative procedures on the kidney, almost solely, on the evidence furnished by the so-called functional diagnosis. For many renal affections, though, especially for those which are not likely to be benefited by radical operative measures, like stone-kidneys, renal infections of various origin,

and conditions of dilatation of the upper urinary tract, the treatment is much better determined by the exact anatomical diagnosis, which is feasible on the basis of pyelography. By this anatomical diagnostic method par excellence we are, at present, able to obtain pictures of the cast of the renal hollow system that are as clear and precise as specimens prepared by the surgical pathologist. From the perfection of this method, as regards simplicity of technique, painlessness and safety, depends the solution of the problem of "mechanics," which pervades the diagnosis of renal infections, and in which therapeutic measures, in order to be effective, must be based on the recognition of incipient stages.

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SOCIETY REPORTS

IN MEMORIAM.

The Fresno County Medical Society learns with profound sorrow of the very sudden and untimely death of its distinguished and beloved State Secretary, Dr. Philip Mills Jones, who departed this life, after a short illness, on November 27, 1916. This society desires to place on record its appreciation of his efficient and loyal service to the State, his uniform courtesy and kindly counsel in all business relations with this society. And

Whereas, Death has removed from the ranks of the medical profession of this State, a most ardent and faithful laborer for the advancement and promulgation of honest medicine; his valuable services in "Medical Defense" and higher standards in medical education, should receive due evidence of our appreciation and profound respect for his memory; therefore, be it

Resolved, That in the death of Dr. Philip Mills Jones the profession of medicine has lost a valuable member; the younger members an inspiration and example, and the State Medical Society a secretary whose place it will be hard to fill; and be it further

Resolved, That a copy of these resolutions be spread on our records and be printed in the California State Journal of Medicine, and be presented to the Council of the State Medical Society.

(Signed) GEO. H. AIKEN,
L. R. WILSON.

MENDOCINO COUNTY.

At the call of the President, Dr. Lester C. Gregory, a meeting was held at Fort Bragg on December 16th in the residence of Dr. Gregory. This being a purely business meeting no visitors were in attendance.

After the minutes had been approved Dr. Harper Peddicord of Fort Bragg was elected to membership.

With the two previously elected new members, Dr. Judson Liftchild and Dr. G. W. Stout of Ukiah, the Mendocino County Medical Society closes the year 1916 with a membership of seventeen.

Those present at this meeting were Drs. L. C. Gregory, F. C. Peirsol, C. L. Sweet, F. McLean Campbell, H. H. Wolfe, G. W. Stout, Harper Peddicord and Oswald H. Beckman.

A communication from Mrs. F. A. Spalding, mother-in-law of the late Dr. Philip Mills Jones, Secretary of the Medical Society of the State of California (Mrs. F. A. Spalding acknowledges with gratitude your kind expressions of sympathy at this time). This referred to the sad occasion of the double funeral of Dr. Philip Mills Jones and his widow, who survived him only by a few hours.

Election of officers for 1917 came next.

The following is a list of the elected and appointed officers for 1917:

President, Dr. Frank C. Peirsol, Mendocino; Vice-President, Dr. G. W. Stout, Ukiah; Secretary, Dr. Oswald H. Beckman, Fort Bragg; Delegate, Dr. Oswald H. Beckman; Alternate, Dr. Lester C. Gregory; Censors, Drs. C. L. Sweet, Judson Liftchild, G. A. Woelffel, Arthur C. Huntley, E. H. Sawyer and O. H. Beckman; Committee on Program for 1917, Drs. H. H. Wolfe, H. O. Cleland, Harper Peddicord, O. W. Sherwood; Committee on Ways and Means, Drs. F. McL. Campbell, Ida Malpas, S. L. Rea, A. D. Pitts and L. C. Gregory; Committee to look after joint meeting with the N. W. P. R. R. S. Association, Drs. G. W. Stout, Judson Liftchild, L. C. Gregory and F. McLean Campbell.

The annual dues were made $7.00 instead of $6.00. Dr. Peirsol, the sole member from this County Society to respond by his presence to the invitation of the N. W. P. R. R. Surgeons' Association to attend their meeting at Santa Rosa, reported a fine time and a very instructive trip.

Dr. Stout made a few remarks on conditions and operations at San Quentin. He stated that from twelve to fifteen M. D. convicts are working in the hospital.

After closing our arduous labors Dr. Gregory invited us to step into the dining-room and told us not to feel bashful in the least as all the dishes had been prepared under the personal supervision of his wife. The table and its decorations, both floral and meaty, looked very attractive and made one feel hungry. Three forks at your left hand gave a hint that preparedness was the best policy. I must say that nothing had been left to the tender mercies of any careless person, everything carried the stamp of the master housekeeper. We extend our thanks to Dr. and Mrs. Gregory. May they ever fare just as well throughout their journey here below.

OSWALD H. BECKMAN, Secy.

SAN LUIS OBISPO COUNTY.

At the last regular meeting of the San Luis Obispo County Medical Society Dr. R. O. Dresser of Paso Robles was elected president, Dr. C. J. McGovern elected vice-president, and Dr. A. H. Wilmar of Paso Robles was elected secretary.

Our society is progressing nicely.

Truly yours,
C. J. McGOVERN.

SAN JOAQUIN COUNTY.

The annual business meeting of the San Joaquin County Medical Society was held Friday evening, December 29th, at the office of the secretary. The society elected a Board of Directors for 1917 Drs. H. J. Bolinger, F. P. Clark, J. D. Dameron, L. Dozier, R. R. Hammond, C. R. Harry, L. R. Johnson, R. T. McGurk and D. R. Powell, and from this board elected Dr. C. R. Harry, president; R. T. McGurk, first vice-president; H. J. Bolinger, second vice-president, and D. R. Powell, secretary-treasurer. Dr. Barton J. Powell was chosen delegate to the State society, and Dr. W. J. Young alternate.

DEWEY R. POWELL, Secretary.